Center for Risk Excellence

Risk Excellence Notes

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THE BROWNFIELDS ECONOMIC REDEVELOPMENT PROGRAM

By Linda Garczynski, U.S. Environmental Protection Agency

Across the country, many communities are enjoying unprecedented economic growth while struggling with properties where contamination poses barriers to reuse. They face a patchwork of abandoned or idled properties where developers fear the uncertain risks of contamination and liability — land commonly called brownfields.

The scale of the problem is immense. Brownfields exist in all types of communities — urban, suburban, and rural areas. At the U.S. Environmental Protection Agency (EPA), we define brownfields as abandoned, idled or under-used former industrial and commercial properties where real or perceived contamination poses barriers to reuse. In the broadest sense, brownfields can range from the corner gas station to factories to military bases and energy facilities. While the General Accounting Office has estimated that there are as many as 450,000 brownfields, others have suggested that there may be more than a million brownfields throughout the nation. The key elements that link all of these properties are the obstacles to reuse caused by environmental contamination concerns, and the need for assessment to help characterize and clarify the environmental risks.

Brownfields can be opportunities for redevelopment and revitalization. The Brownfields Initiative at EPA seeks to empower local communities to find local solutions to their brownfields problems, and provides federal financial and technical support to help communities reach their goals. By supporting risk assessments and cleanups, EPA furthers community efforts to work with the private sector to reuse brownfields properties in a sustainable manner.

EPA has provided pilot grants to communities for assessment, to capitalize revolving loan funds for cleanup, and for job training. Over the past five years, grants have gone out to more than 300 communities, including leveraging more than $1.8 billion in redevelopment funds and creating more than 5,800 jobs. This year EPA will award grants for up to 50 new brownfields assessment pilots, grants to support up to 50 communities to establish cleanup revolving loan funds and up to 15 job training pilots. EPA has helped streamline and clarify its own approaches to contaminated properties, and has worked with states to help establish voluntary cleanup

(Continued on Page 4)

This former railyard site in Cape Charles, Virginia, was developed into an eco-industrial park. More information and photos are contained in this article on page 4.

LETTER FROM THE EDITORS

We live in a disposable society — foam containers, plastic forks, throw-away dust cloths. We use something once and throw it away. Sometimes, we do this with our land as well — pollute the ground with run-off from a factory or contaminate a building, and discard it as unusable property. Brownfields, defined as abandoned or under-used property, are these discarded lands.

With as many as one million brownfields in the U.S. alone (see page 1), the articles in this issue barely touch the topic. It is, however, apparent that large amounts of money and land can be saved by reusing brownfields or recycling materials (see articles on this page and in the brownfields section).

Finding a user for this somewhat tainted property is not always an easy task. In theory, it seems so simple. Clean the material to a level that is protective of human health. Allow people to use the property or material in a manner appropriate with the level of contamination remaining. The problem is that many of us are hesitant to use something that is tarnished. We want things that are clean and new — things we can trust will not bring us harm. But always having the clean and the new conflicts with being a good steward of the earth. We need to learn to reuse what we have. We need to use good judgement in doing so. This will not be a simple success to attain but one we need to strive for.

Nancy Lane
Lane Environmental, Inc.

Mary Jo Acke Ramicone
U.S. Department of Energy
Center for Risk Excellence

WHAT'S HAPPENING AT THE Center for Risk Excellence

A WORD FROM THE DIRECTOR — CLEAN-METAL STANDARDS

The Center for Risk Excellence and the Center for Metal Recycling at Oak Ridge have funded a project with the National Council on Radiation Protection and Measurement to address the scientific issues associated with public exposure to recycled metals and provide a stronger position from which to establish protective standards.

Over the past 50 years, very large quantities of slightly contaminated radioactive scrap metals have been generated as by-products of nuclear weapon materials production and power generation at commercial nuclear power plants. The potential economic value of these metals ($5 - 10 billion worldwide), combined with the escalating costs of disposal ($40 billion worldwide), provide incentives to seek options for recycling the metals. While these metals are categorized as radioactive, between 60 – 70 percent contain no measurable radioactivity. However, critics of recycling, including many steel manufacturers, believe the government's plan to clean and recycle radioactive metals from the country's nuclear energy complex should be stopped and that release of materials that contain any radioactivity should be prohibited.

The U.S. Department of Energy has 1.4 million tons of scrap metals, much of which could be cleaned and recycled. However, citing public concerns, Energy Secretary Bill Richardson recently halted the release of 6,000 tons of volumetrically contaminated nickel from Oak Ridge while the U.S. Nuclear Regulatory Commission (NRC) writes new regulations.

While there are currently no U.S. government standards for residual radioactivity in recycled metals, the NRC and the U.S. Environmental Protection Agency are in the process of developing a dose-based consensus. Standard-setting agencies in other nations, including the International Atomic Energy Agency and the European Community, have developed, or are in the process of developing, standards for release of scrap metals.

Alvin L. Young, Director
U.S. Department of Energy's Center for Risk Excellence

WHAT IS THE CENTER FOR RISK EXCELLENCE?

The Center for Risk Excellence was established in 1997 to help the U.S. Department of Energy (DOE) address risk issues associated with its environmental management activities. Located in the Chicago Operations Office, the Center provides field-based risk expertise and resource coordination to those in Headquarters, the Field/Operations Offices, and outside the agency. With a federal staff of seven, the Center has created an extended organization combining DOE staff from each of its field offices (i.e., Board of Directors), DOE laboratories (i.e., Support Team), Cooperative Agreement Institutions, contractors, and other organizations. For more information, call 888-DOE-RISK or visit the web site http://riskcenter.doe.gov.

WHAT'S HAPPENING AT THE Center for Risk Excellence

RISK TRAINING FOR PUEBLO TRIBAL NATIONS

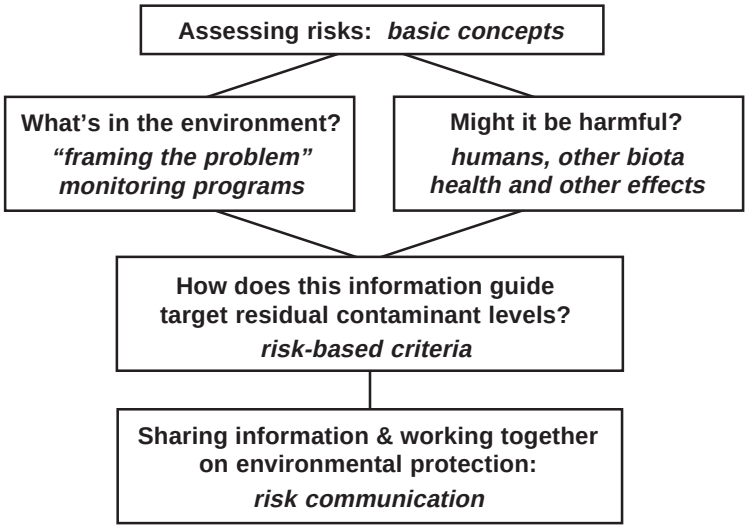
By Fred Monette, Argonne National Laboratory

A team from the Center for Risk Excellence recently developed and presented a training course entitled "Fundamentals of Human Health and Ecological Risk Assessment for Environmental Monitoring and Protection." The course, presented in Albuquerque, included more than ten modules that covered fundamentals of general risk assessment principles; project planning and development of conceptual site models; approaches for assessing human and ecological risks associated with radiological, chemical, and other hazards or stressors – and ways to extend the process to other stressors (including sociocultural); environmental sampling; development of cleanup criteria; and shared risk communication (see Figure 1). The objective was to describe current approaches and resource information that could be applied and adapted to meet unique needs of the Native American Pueblos in developing and refining risk-based environmental programs.

Participants included representatives of four Pueblo tribes as well as several U.S. Department of Energy organizations working on common environmental risk issues. Feedback was very positive, as evident in this comment by a workshop participant: *"Thank you for doing such a great job on the Risk Training. You and the other team members assembled and delivered one of the most valuable courses that I have had the pleasure to attend during my four year tenure at Jemez."* Participants also expressed interest in further discussions about extending or modifying current principles to address issues of particular importance to Native Americans, including protecting cultural and religious resources.

For more information, contact Fred Monette (630/252-5722; fmonette@anl.gov).

Figure 1. INTERRELATIONSHIPS AMONG COURSE TOPICS AIMED AT ADDRESSING KEY RISK QUESTIONS, DESIGNED TO ENHANCE CAPACITY FOR TRIBAL-BASED AND COMMUNITY-BASED ENVIRONMENTAL MANAGEMENT PROGRAMS



IN OTHER NEWS FROM THE CENTER . . .

PETER SIEBACH COMPLETES EXECUTIVE POTENTIAL PROGRAM – On March 17, Peter Siebach was one of about 150 graduates from the federal government's Executive Development Program. The program, run by the U.S. Department of Agriculture Graduate School, identifies and trains new leaders for the federal government. Pete, a U.S. Department of Energy staff member with the Center for Risk Excellence, is the Center's National Program Manager for Risk Assessment. Recently he managed and helped prepare the report Life-Cycle Cost and Risk Analysis of Alternative Configurations for Shipping Low-Level Radioactive Waste to the Nevada Test Site.

PEER REVIEW IN 2000 – Eleven of the U.S. Department of Energy's (DOE) technologies from its Office of Science and Technology (OST) are scheduled for peer review in fiscal year 2000. Under this activity new technologies developed by DOE are reviewed in accordance with guidelines from the American Society of Mechanical Engineers (ASME) and OST. The eleven technologies scheduled for review are:

- Demonstration of Alternative Oxidation Technology at Savannah River, Columbia, Maryland
- Hydrogen Gas Getters, Idaho Falls, Idaho
- Surface Acoustic Wave Mercury Vapor Sensor - Sensor R&D Corp., Columbia, Maryland
- Surfactant Enhanced Aquifer Remediation of Perchloroethylene at Neutral Buoyancy, Columbia, Maryland
- Reactive Barrier Performance Monitoring and Verification (Passive Reactor Barrier), Columbia, Maryland
- Subsurface Contaminant Focus Area FY 2001 Call for Proposals, Columbia, Maryland
- Non-Invasive Determination of the Location and Distribution of Dense Non-Aqueous Phase Liquid by Seismic Reflection Techniques, Columbia, Maryland
- Low Activity Waste Form, Idaho Falls, Idaho
- High Activity Waste Form, Richland, Washington
- Regenerable Filters for Waste Tank Ventilation, Richland, Washington
- Pipe Unplugging, Miami, Florida

The Peer Review Program is important to the DOE Environmental Management Program because it provides OST decision makers with timely, uniform, independent, and unimpeachable technical reviews assessing the scientific and engineering merit of the OST technology development activities.

For more information contact Yvette Collazo (630/252-2102; yvette.collazo@ch.doe.gov).

SUMMER SCIENCE TEACHERS INSTITUTE — The Center for Risk Excellence and the Medical University of South Carolina (MUSC) have teamed to sponsor a Science Teachers Institute at MUSC, July 9-22, 2000. This year the U.S. Department of Energy is the Institute's sponsor, previously sponsored by the U.S. Environmental Protection Agency. Generally, participants were science teachers from the regions bordering the Savannah River Site. This year, the Institute has also invited science teachers from seven of the Tribal Colleges.

BROWNFIELDS AND ECONOMIC DEVELOPMENT

The Brownfields Economic Redevelopment Program (Continued from Page 1)

programs. An EPA memoranda of agreement with 14 states clarifies roles and responsibilities on cleanup of sites under these programs.

Through the Brownfields National Partnership, EPA collaborates with more than 20 federal agencies to provide support to brownfields cleanup and reuse. Since 1997, the partnership has helped provide more than $385 million in federal financial support to local brownfields efforts. The U.S. Department of Housing and Urban Development (HUD), the Economic Development Administration (EDA) of the U.S. Department of Commerce, and the U.S. Army Corps of Engineers (USACE) of the Department of Defense have all been key players in working with EPA to provide communities with the redevelopment support. Together, the federal partners have designated 16 Showcase Communities, national models of collaboration to receive targeted technical and financial support to clean up and reuse their brownfields. The federal partners have solicited proposals from communities with plans to select up to ten more showcases this year.

With its hands-on experience in cleanup and reuse at U.S. Department of Energy (DOE) facilities, DOE has supported the Brownfields Initiative by sharing remediation technology information, and by providing funding for information sharing and exchange. For example, DOE helped revitalization efforts at Prichard, Alabama, by organizing workshops on environmental technology and by helping local efforts to inventory and assess brownfields properties, including providing funds for a graphical property database. DOE's petroleum research lab in Bartlesville, Oklahoma, worked with the EPA and the state to conduct testing and characterization for a 17-acre brownfields project there.

DOE has also furthered the Brownfields Initiative by incorporating renewable and efficient energy into reuse efforts. In Cape Charles, Virginia, DOE and EDA worked with a small community to develop an eco-industrial park that will use energy more efficiently (see photos this page and on page 1). In 1999, DOE announced its "brightfields" initiative, bringing pollution-free solar energy and high-tech solar manufacturing jobs to brownfields, helping solve the complex challenges of job creation, air quality and toxic waste cleanup. DOE worked with Chicago, Illinois, to turn a former dump site into a solar products manufacturing and a job training center, all in a state-of the-art energy efficient and solar powered building.

These are just a few examples of the ways that DOE and EPA are connecting their missions and programs. The federal partners working on brownfields are helping more communities every day, as we learn and demonstrate that redeveloping brownfields is both good for the economy and the environment.

Linda Garczynski is the Director of the Outreach and Special Projects Staff, Office of Solid Waste and Emergency Response, U.S. Environmental Protection Agency.

For more information, contact the EPA Brownfields program (202/260-4039; http://www.epa.gov/brownfields).

FORMER BROWNFIELDS DEVELOPED INTO AN ECO-INDUSTRIAL PARK

The U.S. Department of Energy and the Economic Development Administration worked with Virginia's Cape Charles community to develop this eco-industrial park (architect's rendering above) from a former dump (photo below) and railyard (photo on page 1).

BROWNFIELDS AND ECONOMIC DEVELOPMENT

BROWNFIELDS: A CHALLENGE FOR AMERICAN CITIES

By David Rivers, Medical University of South Carolina

Although it is often perceived as an economic redevelopment program, the U.S. Environmental Protection Agency's (EPA) Brownfields Initiative generates extensive discussion across a broad base of interests and issues. These include economic development, human health and safety, environmental equity, community involvement and education. As complex as it can be, this broad-based dialogue may benefit from the common ground provided by a goal-based approach to risk assessment and risk management.

As mentioned in the lead article of this newsletter, the EPA defines Brownfields as "abandoned, idled, or underused industrial and commercial facilities where expansion or redevelopment is complicated by real, or perceived environmental contamination." Many of these sites are in low-income and minority communities, which tend to have several conditions in common: high unemployment, low education levels, poor housing conditions, poor health care and/or access to health care, high crime rates and serious environmental insults. The diversity of issues implies a need for creative, new partnerships capable of addressing many interests and issues.

Working partnerships at all levels of government and the private sector may find that a goal-based approach is ideally suited to identifying the unique risks and appropriate redevelopment strategies for each site. A simplified goal-based approach may be particularly useful in explaining and quantifying risks for a range of stakeholders.

For example, residents of an impacted community may be concerned by effects of redevelopment on their health and livelihood. Financial institutions may be reluctant to make loans associated with potentially contaminated sites. A goal-based approach may provide these stakeholders with unbiased information as a basis for effective decision-making.

David Rivers is the Director of Public Policy in the Medical University of South Carolina's Environmental Biosciences Program. He may be contacted at 843/727-6450, x6443; email rivers@musc.edu.

A BROWNFIELDS PILOT

Property along the Blair Waterway in downtown Tacoma, Washington, has been targeted for cleanup and will be developed into a marine terminal.

RISK-BASED CONTAMINATED LAND REGIME IN THE UNITED KINGDOM

By Julian Williams, AEA Technology Environment

A new risk-based contaminated land regime, or approach will come into force in the United Kingdom (UK) in April 2000. The objective is to identify, assess and, where necessary, remediate contaminated land in the UK. The underlying principles of the approach are:

- Land must be "suitable for use." A risk-based approach has been defined, in which pollutant-linkages (source-pathway-receptor groups) are identified and critically assessed. Only the intended land-use is considered in this assessment. More sensitive land-uses are not assessed if they do not currently apply to the land.
- The polluter pays. If remediation might be required, then an "appropriate person" is identified as responsible for it. First in line is the original polluter, but others could also be identified or share responsibility. "Informed knowledge" of land contamination can be sufficient to pass on responsibility in the event of selling the land.

It is hoped that implementation of the new approach will encourage identification and remediation of contaminated land that is currently causing a significant probability of significant harm, a phrase that is carefully defined in the statutory guidance to encourage a risk-based approach to contaminated land assessments and decision-making.

For more information, contact Julian Williams (phone +44 1925 254794; email julian.williams@aeat.co.uk).

REUSING MILITARY BASES

By Cheryl Overstreet, U.S Environmental Protection Agency

The base realignment and closure (BRAC) process is successfully closing military installations and putting them into reuse to benefit the community. In July 1993, the President announced a program to help speed the economic recovery of communities affected by the U.S. Department of Defense's (DoD) BRAC program. Part of the President's plan accelerated environmental cleanup at closing bases to prepare property for community reuse, while ensuring that human heath and the environment are protected. The slow pace of cleanup, conducted under structured regulatory programs, was seen as the most significant impediment to the property's return to productive use.

The President challenged DoD to limit delays in property reuse and transfer. By November 1993, DoD had established BRAC cleanup teams (BCT) at all 77 major BRAC installations. The teams, comprising DoD, U.S. Environ-

(Continued on Page 6)

BROWNFIELDS AND ECONOMIC DEVELOPMENT

Reusing Military Bases
(Continued from Page 5)

mental Protection Agency, and state environmental agency representatives, were charged to take a common sense approach to environmental cleanup by developing common goals and then making decisions and setting priorities based on those goals.

Results from incorporating the BCT process at closing military bases include:

- Bergstrom Air Force Base, Bergstrom, Texas, is now the Austin-Bergstrom International Airport;
- U.S. Army Cameron Station, Cameron, Virginia, has 101 acres converted to housing, sports fields, tennis courts, and playgrounds;
- Fort Ord, Fort Ord, California, expedited the transfer of more than 2,050 acres before the completion of all cleanup at the base by either identifying uncontaminated areas or determining that the groundwater treatment system was operating properly and successfully;
- Mare Island Naval Shipyard, Mare Island, California, generated more than 1,000 new jobs through innovative approaches to leasing before transfer;
- Application of innovative technologies will avoid more than $13 million in costs at Umatilla Chemical Depot, Umatilla, Oregon; and
- Wurtsmith Air Force Base, Wurtsmith, Michigan, earned national recognition for relocation of base structures for low-income housing.

More information on these bases and other closing installations can be found at http://www.epa.gov/swerffrr and http://www.dtic.mil/envirodod/envbrac.html.

REINDUSTRIALIZATION IN TENNESSEE

By Paula Jennings, Science Applications International Corporation

The U.S. Department of Energy (DOE) Oak Ridge Operations (ORO) Reindustrialization Program is successfully attracting new businesses to the East Tennessee Technology Park (ETTP) (the former K-25 site at Oak Ridge). Teamwork, careful planning, and risk analysis ensure that cleanup and private industry safely co-exist.

Reindustrialization uses underutilized but valuable equipment, materials, land, and facilities to attract private industry to the site. Many firms provide cleanup-related services in exchange for recyclable assets and/or favorable lease terms, thereby accelerating site remediation and creating new jobs. More than 30 companies now lease space at ETTP, and this successful DOE brownfields initiative has generated nearly 900 jobs and will save the government $828 million over the life of the program.

DOE-ORO works hand-in-hand with the Community Reuse Organization of East Tennessee (DOE-ORO's leasing agent) and Bechtel Jacobs Company LLC (DOE-ORO's environmental management contractor) to evaluate facilities for leasing. Risk assessments, hazard evaluations, and environmental reviews are completed to determine the suitability of facilities for lessee occupancy. Tenants at ETTP receive site-specific training, develop Safety and Health Plans, and participate in the ETTP Safety Council. Additionally, DOE performs safety consultation and maintains systems for radiological protection where necessary. Together, these measures provide a safe working environment for all co-located workers on the site.

For more information, contact Susan Cange (865/576-0334; email cangesm@oro.doe.gov).

OAK RIDGE OPERATIONS - REUSING BROWNFIELDS

Left: Charles Blue, President of Infrared Technologies, demonstrating a custom infrared heating furnace produced for a PVC products manufacturer. Infrared Technologies is leasing space in Building K-1401, a former machine shop.

Right: Cleanup is underway in Building K-1420, where Decon and Recovery Services of Oak Ridge is performing decommissioning and decontamination under contract to the U.S. Department of Energy so that the building can be leased in the future.

BROWNFIELDS AND ECONOMIC DEVELOPMENT

LEASING OF U.S. DEPARTMENT OF ENERGY FACILITIES TO PRIVATE INDUSTRY

U.S. Department of Energy (DOE) facilities are being leased to private companies under guidelines established to ensure worker safety at leased facilities is not compromised. DOE developed criteria to address pertinent regulatory requirements, Departmental commitments, stakeholder concerns, and program goals for each building identified for re-use. These criteria will result in leasing conditions that must be met before facility transfer.

The building's performance against the evaluation criteria will determine the worker exposure protection requirements. The facility will fall into one of the following three graded protection categories:

1) **Unrestricted release. The property is suitable for release for unrestricted use and is outside of the controlled area. Workers are classified as members of the public and exposure will not exceed "as low as reasonably achievable" (ALARA) requirements.**
2) **Restricted release (workers classified as members of the public). Exposure will not exceed ALARA, lessee activities will not involve radiological work for DOE; however, workers will receive the same protections as members of the public under 10 CFR 835.**
3) **Restricted release (workers classified as general employees). Lessees' activities may involve radiological work for DOE; workers will be protected via access controls, emergency response training, and other methods.**

Oversight of unrestricted release facilities is transferred from DOE to other state and federal agencies. For restricted release, institutional controls (such as legal controls, easements, and zoning ordinances) must be implemented to prevent or limit exposure to hazardous substances. The transferring federal agency ensures institutional controls are implemented (with approval by the U.S. Environmental Protection Agency [EPA]), as the ultimate responsibility for monitoring and maintaining a safe work environment remains with the federal agency in charge of cleanup.

FOR ADDITIONAL INFORMATION SEE:

55 FR page 8706, March 8, 1990

EPA, *Institutional Controls and Transfer of Real Property Under CERCLA Section 120 (h)(3)(A), (B), or (C) – Interim Final Guidance,* January 2000

***Guidance on Protection of Workers Utilizing DOE Leased Facilities,* August 6, 1999**

***Resourceful Reuse: A Guide to Planning Future Uses of Department of Energy Sites DOE/EM-0284,* May 1996**

EPA *Guidance on the Transfer of Federal Property by Deed Before All Necessary Remedial Action Has Been Taken Pursuant to CERCLA Section 120 (h)(3),* June 16, 1998.

IN OTHER NEWS ON BROWNFIELDS . . .

BROWNFIELDS 2000 CONFERENCE
OCTOBER 11-13, 2000
ATLANTIC CITY, NEW JERSEY

Meet brownfields experts from business, development, finance, insurance, and law; representatives from grassroots community organizations and environmental groups; and top federal, state, and local government officials. Hear from national and international experts on cutting-edge research directed at redeveloping brownfields. Speak with U.S. Environmental Protection Agency regional administrators about what is going on around the country. Tour local brownfield sites and talk to the stakeholders.

For more information visit http://brownfields2000. org. Presented by The Engineers' Society of Western Pennsylvania.

ENVIRONMENTAL WORKSHOPS

Last summer sixteen teachers and seventeen high school students studied environmental issues by using real world situations at the U.S. Department of Energy's (DOE) Hanford Site as the basis for their educational experience. This approach was used to educate future generations to understand the issues necessary for sustainable development and long term stewardship at the Hanford Site. In addition, the teachers' institute provided the necessary tactics and information to allow teachers to incorporate Hanford Site related issues into daily classroom exercises and curriculum.

Each day, teachers participated in hands-on activities to illustrate important issues including: environmental sustainability, geology, soil and soil ecosystems, water quality via a tour of the Columbia River and remediation techniques. The students took part in similar daily workshop activities, including a scenario that allowed them to work as a team to investigate land reuse opportunities. This team exercise culminated in a presentation highlighting their experiences and perspectives regarding land reuse.

The program, held at Washington State University - Tri-Cities, was sponsored by the DOE Federal Energy Technology Center and the National Institute for Environmental Renewal.

For more information contact Phil Gallagher, Program Manager, National Institute for Environmental Renewal (570/281-5410; pgallagher@nier.org).

SCIENCE NEWS

ENHANCING COMMUNITY INVOLVEMENT IN SUPERFUND RISK ASSESSMENT

By Jayne Michaud, U.S. Environmental Protection Agency

People who live on or near Superfund sites want answers to tough questions including: *"How dangerous is the Superfund site near my house?" , "Am I being exposed to chemicals from the site?" , "What will be done to protect me and my family?".* Questions like these are often the most difficult for government officials to answer.

Although the U.S. Environmental Protection Agency (EPA) Superfund program requires public participation, it is not commonplace in risk assessment. The need to change this was vocalized at a series of stakeholder meetings held to discuss ways to improve EPA's Risk Assessment Guidance for Superfund. In response, the EPA developed several new tools (see Exhibit 1). These tools have a dual purpose: (1) to explain risk assessment methodology clearly, with a focus on commonly misunderstood concepts; and (2) to encourage proactive outreach from staff to communities. The new products use plain language, give ideas for getting early involvement, and set realistic expectations by acknowledging limitations and constraints.

Experience in Superfund has found that meaningful involvement by local citizens can strengthen and improve site-specific risk assessments. Through implementation of these tools, EPA will continue to improve how it involves and informs citizens about the Superfund process.

For more information, see Exhibit 1 or contact Jayne Michaud (703/603-8847).

EXHIBIT 1. NEW TOOLS TO ENHANCE COMMUNITY INVOLVEMENT IN SUPERFUND RISK ASSESSMENTS

Risk Assessment Guidance for Superfund (RAGS): Volume 1 - Human Health Evaluation Manual. Supplement to Part A: Community Involvement in Superfund Risk Assessments. March 1999. EPA-540-R-98-042 OSWER-9285.7-01E-P. PB99-963303. http://www.epa.gov/superfund/programs/risk/ragsa/ci_ra.htm.

Superfund Today. Focus on Risk Assessment: Involving the Community. April 1999. EPA 540-K-98-004. OSWER 9200.2-26J. PB-963254. http://www.epa.gov/superfund/tools/today/sf_com1.htm.

Toxic Waste in This Neighborhood: Work with the Superfund Program to Clean It Up. August 1999. EPA 540-K-99-001.

Superfund Risk Assessment-What It's All About and How You Can Help. December 1999. EPA 540-K-99-003 OSWER 9285.7-30.

Superfund Risk Assessment and How You Can Help: An Overview (an 11-minute videotape). September 1999. EPA-540-V-99-003, OSWER-9285.7-29B.

Most of these products can be accessed on the EPA web page (if noted), through the U.S. Department of Commerce National Technical Information Service http://www.ntis.gov, or by contacting EPA Superfund staff: Jayne Michaud (703/603-8847) or Jean Farrell (703/603-9055).

IN OTHER SCIENCE NEWS . . .

DRAFT GUIDANCE ON ECOLOGICAL RISK ASSESSMENT OUT FOR REVIEW – The U.S. Environmental Protection Agency's (EPA) draft guidance document *Screening Level Ecological Risk Assessment Protocol for Hazardous Waste Combustion Facilities* is available for an 180-day public review period (http://www.epa.gov/epaoswer/hazwaste/combust.htm).

This document contains the Office of Solid Waste's recommended approach for conducting site-specific ecological risk assessments on hazardous waste combustors regulated under the Resource Conservation and Recovery Act (RCRA). The document includes specific parameters, pathways and algorithms to evaluate both direct and indirect risks to ecological receptors. The goal of this guidance document is to develop a consistent and credible methodology for conducting ecological risk assessments at hazardous waste combustion facilities. The results of the risk assessments will give an understanding of the potential ecological risks associated with emissions from those facilities.

It will be a companion to *Human Health Risk Assessment Protocol for Hazardous Waste Combustion Facilities* (Peer Review Draft EPA530-D-98-001A, B & C posted at http://www.epa.gov/fedrgstr/EPA-WASTE/1999/January/Day-11/f133.htm). The results of these risk assessments can provide a basis for risk management decisions in the permitting of hazardous waste combustors and help to ensure that the operation of hazardous waste combustion facilities will be protective of human health and the environment.

All public comments should be received by August 9, 2000, to be considered by the Agency. EPA requests that the comments:

1) Be individually identified and a proposed resolution (or action) be recommended;
2) Include any supporting information or reference materials which corroborate the comment and or proposed resolution; and
3) Be supplied in English or accompanied by an English translation.

To obtain the document visit http://www.epa.gov/epaoswer/hazwaste/combust.htm. For paper or CD-ROM copies of the guidance document, please contact the RCRA Information Center (RIC), Office of Solid Waste (5305G), U.S. Environmental Protection Agency Headquarters (EPA HQ), 401 M Street, S.W., Washington, DC 20460 (703/603-9230). See the Federal Register notice at http://www.epa.gov/fedrgstr/EPA-WASTE/2000/February/Day-11/f3217.htm

SPEAK YOUR MIND

About SPEAK YOUR MIND: *SPEAK YOUR MIND contains letters about articles published in the current and previous issues of* Risk Excellence Notes. *The views and opinions expressed by the authors do not necessarily state or reflect those of the United States Government, or any agency thereof, or of the Editorial Board of* Risk Excellence Notes.

REMEDIATION CONCERNS

RUSHING TO RENT: THE LEASING OF CONTAMINATED FACILITIES

"Reindustrialization" involves the leasing of space at U.S. Department of Energy (DOE) sites to private companies. Reindustrialization may be a viable concept in principle, but DOE's program is flawed.

The DOE is leasing contaminated buildings. The Oak Ridge site, for example, is leasing spaces within a building that has not been fully decontaminated. The building is contaminated to such an extent that leases prohibit the tenants from venturing above a certain height because the building's 35-foot interior walls have been decontaminated to only eight feet. The contamination poses health and safety risks. The leased spaces at Oak Ridge contain potential worker hazards, including radiological contamination, asbestos, and fissile materials[1]. It is difficult to understand what the risk is to workers in these facilities today. One report prior to decontamination indicates the 40-year cumulative dose from inhalation of radioactivity that was present in 1995 would be about 450 millirem[2]. This does not account for cleanup activities at the facility, nor does it address exposure to non-radioactive materials.

The lessee workers should be outfitted with radiation protection gear, regularly monitored for radiation exposure, and protected according to U.S. Environmental Protection Agency exposure limits – not DOE worker standards. This does not appear to be the case at Oak Ridge.

Thus, through the reindustrialization program, DOE is extending unnecessary radiation risks to a new group of people. This is irresponsible in light of its recent admission, after decades of denial, that nuclear weapons production harmed workers.

The DOE should halt the leasing of all contaminated facilities, compensate the lessees for moving-related costs, and carefully reassess the program.

Lisa Ledwidge, Institute for Energy and Environmental Research

Based on the article, Rush to Rent: DOE's Leasing of Contaminated Facilities is Putting Workers at Risk, *in* Science for Democratic Action, *volume 7 number 3, May 1999 (Takoma Park, Maryland, Institute for Energy and Environmental Research), http://www.ieer.org/sdafiles/vol_7/7-3/index.html.*

1 USDOE 1997 Office of Environment, Safety, and Health, Office of Oversight, *Special Review: Safety Management Evaluation of Facility Disposition Programs at the East Tennessee Technology Park*, September 1997, EH2PUB/09-97/05SR

2 SAIC 1997 Science Applications International Corporation, *Screening-level Human Health Risk Assessment for Building K-1401*, K/EM-565, December 1997.

RISK FINANCING AND LONG-TERM STEWARDSHIP

The U.S. Department of Energy (DOE) possesses 137 weapons production or related facilities undergoing environmental remediation. The facilities cover thousands of square miles and represent the largest single environmental problem in the U.S. in terms of cost. During the next ten years many of these facilities will reach their end state and remediation activities will cease. The land, at various levels of contamination, will either be transferred to other federal, state, or local agencies or will remain the property of DOE. On land that DOE maintains under such long-term stewardship, there may be residual waste (contamination) or stored waste (landfills) that will create risk to the general public and the environment.

DOE could make flawed long-term financial decisions about the extent of environmental remediation performed and unfairly bias near-term, low-cost remediation alternatives, because the cost of risk is not included in long-term stewardship. Current long-term stewardship costs only include minimum long-term surveillance, soil and groundwater monitoring, record keeping, and containment structure maintenance costs.[1]

It is essential that DOE use risk financing as well as risk control, so that the cost of risk is also shown as a cost of long-term stewardship. Risk financing, paying for damages that occur from a risk, can be classified as risk retention or risk transfer. Retention identifies funding to pay for future losses. Transfer passes on its risk to another entity through a third party (such as an insurance company) or by contractually indemnifying the risk during an asset transfer.[2]

The government has always been considered self-insured. The promise of future funding is used to "indemnify" the stakeholders to future risk. The cost of this risk indemnification is not normally identified during site closure planning for sites that will be maintained by the federal government and may not even be identified when the land is transferred to another government entity.

The under-funding of the current cleanup of the nuclear weapons complex shows that stakeholders would be better served not to accept self-insurance but demand that the federal government be forced during closure negotiations to:

- Provide yearly set aside funding in an amount sufficient to cover future risk (premiums);
- Create an up-front trust that would cover the costs of any future remediation or liability (self-insurance); and
- Pay for third-party insurance.

Only through the use of complete risk management practices can the public, and their representatives in Congress, be assured that DOE is making the right decisions and that the government will have the ability to meet its future obligations.

Gary Ballew, Pacific Rim Enterprise Center

Gary Ballew is a project manager for Pacific Rim Enterprise Center,a not-for-profit organization that advocates sustainable development practices and addresses environmental policy issues. He can be contacted at 509/946-0611 or gballew@pacific-rim.org.

1 Final report language from FY00 Defense Authorization Act On Long-Term Stewardship Report, *FY 2000 Defense Authorization Act Conference Report* excerpted from the *Congressional Record*, August 5, 1999; Page H7855.

2 *Integrated Environmental Risk Management in Real Estate Transactions, Environmental Claims Journal*, Susan Neuman, Fall, 1998.

Definitions:
Risk Control - risk prevention or reduction
Risk Financing - paying for damages that occur from risk
Risk Indemnification - exemption from future liability

(Speak Your Mind is Continued on Page 10)

Speak Your Mind (Continued from Page 9)

RESOURCE ALLOCATION

HALVING PREMATURE DEATH

The catastrophes of the twentieth century are obvious — 20 million killed by the 1919 flu epidemic, 200 million killed in wars and famines, and about 2 billion killed by the avoidable diseases of early childhood. Worldwide, there has been a threefold decrease in childhood mortality since 1950, a smaller decrease in adult mortality, and an increased life expectancy in most parts of the world.

Still, most deaths are premature, because there are so many more young people than old people. Of the 50 million deaths worldwide in 1990, 15 million were in early childhood (ages 0-4), 15 million were in middle age (35-69) and only 15 million were at older ages.

At present, the only major worldwide causes of death that are increasing rapidly are HIV and tobacco. Several million people a year become infected with HIV, and this number is growing. Nobody really knows how large the HIV epidemic will become, and how many tens of millions of deaths it will cause this century.

The magnitude of tobacco deaths is becoming clear. If current smoking patterns continue the annual numbers killed by tobacco will increase from about 3 million in 1990 to 10 million in 2030. Worldwide, about 1.5 billion people already smoke or will smoke when they reach adulthood. Recent epidemiological evidence shows that about half of all persistent cigarette smokers are eventually killed by their habit.

If the world puts substantial resources into continuing the decrease in childhood mortality in poor countries, then (barring new catastrophes) we can foresee a time when the large majority of those who avoid HIV and tobacco will live to age 70. Still, only a small proportion will survive to 100: halving premature death will not give us eternal life.

Richard Peto, University of Oxford, United Kingdom

CLEANING UP THE NATION'S NUCLEAR WEAPONS SITES: DOES ANYBODY CARE?

Cleaning up the nation's former nuclear weapons sites is the largest environmental undertaking the United States has ever faced with $50 billion already spent on this effort. The U.S. Department of Energy (DOE), which leads the cleanup, estimates the project will cost another $150 to $200 billion–and take 70 more years to complete.

Given the environmental and health threat posed by this Cold War legacy one might expect the cleanup to be near the top of the nation's environmental agenda, but overall nuclear weapons cleanup registers barely a blip on the nation's environmental radar.

To ensure proper use of so much money, DOE must clarify the mission of its Office of Environmental Management to separate job creation and economic development functions from its environmental management activities. And it must make changes in internal accounting and budgeting procedures to clarify how money is spent, and to improve the accountability of the program's federal employees – as well as its 36,000 prime contractor employees.

Congress and the Administration also should begin the difficult process of deciding which former weapons sites will, and which will not, have a future mission. Although producing nuclear weapons stopped 10 years ago, we have not decided what to do with many of the facilities where these weapons were produced.

Congress or the president should create an independent commission to identify needed reforms in the structure and mission of the Environmental Management program. This commission should tackle the questions of how to assure that DOE's Office of Environmental Management establishes a clear mission, streamlines lines of authority, encourages greater internal and external accountability, and is protected from parochial interests. Until Congress and senior officials in the executive branch are committed to true reform, the nation will never effectively deal with the Cold War's longest — and costliest — environmental legacy.

Katherine N. Probst, Resources for the Future

For more information, contact Dan Quinn (202/328-5019; email quinn@rff.org).

GENETICALLY-MODIFIED ORGANISMS

LONG-TERM EVOLUTION CONCERNS

As undoubtedly one of only a dauntingly few people in the DOE nuclear weapons complex whose initial education was as a paleontologist, I cannot restrain myself from commenting on the February/March 2000 issue of *Risk Excellence Notes*.

The current debate over Genetically Modified Organisms (GMOs) seems to be missing an important point - the scientific community has no idea of the long-term evolution of these organisms or their potential effect on other organisms. Historical methods of animal and plant breeding - such as turning wolves into dogs or making modern corn, have used selection of individual organisms as the basis for subsequent breeding. Only natural processes are used. The issue of which I have seen little discussion regarding GMOs is that we are now creating new life forms that never previously existed. The tests done to satisfy ourselves that these organisms are safe are short term and any models we might use to try and determine the long-term impact of these organisms are undoubtedly flawed. We can't even make flawless models to predict weapon behavior, much less models to predict something so complex as life.

I am not opposed to GMOs. I just don't think that the scientific community is paying enough attention to possible adverse outcomes. In nuclear weapons assessment, we have people who determine system outputs based on defined processes and understood inputs - "blue thinkers." We also have people who devote themselves to trying to figure out system weaknesses based on abnormal inputs and weaknesses in process characterization - "red thinkers." Such an approach is needed in the world of GMOs.

There appear to be many near-term benefits to GMOs. We just need to assure ourselves that we are not creating a long-term problem. History is replete with examples of technological developments that had unexpected and undesired outcomes. We are now making a technological development that can reproduce itself. Such a development warrants serious study of its adverse potential.

John D. Shaw, Sandia National Laboratories, Albuquerque, NM

MORE BALANCE, PLEASE

As a vegetarian and consumer of significant amounts of genetically modified soy-based products (though not necessarily always by choice due to a lack of labeling requirements), I cannot say I am totally against genetically modified food. However, I do feel the articles about agricultural biotechnology and genetically modified food in the February-March 2000 issue of *Risk Excellence Notes* were one-sided. The articles gave short shrift to potential environmental impacts resulting from biotechnology.

(Continued on Page 11)

UPCOMING EVENTS

APR. 28-MAY 4: SAFETY ANALYSIS WORKING GROUP 2000: BUILDING A BRIDGE TO THE 21ST CENTURY, Santa Fe, NM. Contact Terry Rudell (505/665-5193; email trudell@lanl.gov).

MAY 1-3: THE INTERNATIONAL ASSOCIATION FOR PUBLIC PARTICIPATION (IAP2) 2000 CONFERENCE- A NEW MILLENNIUM FOR GLOBAL DEMOCRACY, Washington, DC. Contact IAP2 (800/644-4273; email iap2hq@pin.org).

RISK COMMUNICATION WORKSHOPS
MAY 5-2: Introductory Class, Baltimore, MD
JUNE 6-8: Introductory Class, Seattle, WA
JULY 17-20: Advanced Class, Baltimore, MD
AUG 22-24: Introductory Class, Baltimore, MD
Contact Laura Hoover (410/436-7715; http://chppm-www.apgea.army.mil/hrarcp/pages/index.html.

MAY 11-13: HOW WILL FISH, SCIENCE, AND GOVERNMENT ADAPT TO THE NEW MILLENNIUM? Lacey, WA. Contact Randy Marshall (306/407-6445; email rmar461@ecy.wa.gov).

MAY 21-25: 3RD SETAC WORLD CONGRESS – GLOBAL ENVIRONMENTAL ISSUES IN THE 21ST CENTURY: PROBLEMS, CAUSES, & SOLUTIONS, Brighton, UK. Contact SETAC-Europe (+32-2-7727281; email SETAC@ping.be; http://setac.org).

MAY 21-26: 43RD INTERNATIONAL ASSN.-GREAT LAKES RESEARCH CONFERENCE, GREAT RIVERS 2000 - A VISION FOR TOMORROW, Cornwall, Ontario, Canada. Contact Christina Collard (613/936-6620; email ccollard@riverinstitute.com; http://www.iaglr.org).

MAY 23-24: RISK-BASED CORRECTIVE ACTION APPLIED AT PETROLEUM RELEASE SITES, Washington, DC. Contact Eileen Finn (610/832-9686; email efinn@astm.org).

MAY 2000: 5TH NATIONAL TRIBAL CONFERENCE ON ENVIRONMENTAL MANAGEMENT. Contact Stephen Etsitty (703/305-3194) or Luke Jones (703/605-0728; http://www.epa. gov/tribalmsw/fednews.htm#conferences).

JUNE 5-9: UNDERSTANDING CONTAMINATED HARBOR AND RIVER SEDIMENT, Madison, WI. Contact Patrick Eagan (800/462-0876; email custserv@pr.engr.wisc.edu; web site http://epd.engr.wisc.edu/brochures/9709.html).

JUNE 19-23: THE HEALTH PHYSICS SUMMER SCHOOL - APPLICATIONS OF PROBABILITY & STATISTICS IN HEALTH PHYSICS, Ft. Collins, CO. Contact Thomas Borak (970/491-6450; email tborak@cvmbs.colostate.edu; http://lamar.colostate.edu/~hplab/).

JUNE 25-28: MARINE RECREATIONAL FISHERIES SYMPOSIUM: MANAGING U.S. MARINE RECREATIONAL FISHERIES IN THE 21ST CENTURY, San Diego, CA. Contact Dallas Miner (301/427-2015).

JUNE 25-29: 2000 AMERICAN RADIATION SAFETY CONFERENCE & EXPOSITION, Denver, CO. Contact Health Physics Society (email hps@BurkInc.com; http://www.hps.org/newsandevents/).

JULY 9-12: WATERSHED 2000, Vancouver, British Columbia, Canada. Contact Water Environment Foundation (800/666.0206; email msc@wef.org; http://www.wef.org/Conferences/index.htm).

JULY 9-12: THE COASTAL SOCIETY 17TH INTERNATIONAL CONFERENCE, Portland, OR. Contact Laurie Jodice (email jodicel@oce.orst.edu; http://www.oce.orst.edu/mrm/tcs17/confhome.html.

AUG. 29-31: 3RD DIXIE LEE RAY MEMORIAL SYMPOSIUM, Washington, DC. Contact American Society of Mechanical Engineers (800/THE-ASME; email infocentral@asme.org; http://www.asme.org).

MAY 15-18, 2001: ECO-INFORMA 2001: ENVIRONMENTAL RISKS & THE GLOBAL COMMUNITY - STRATEGIES FOR MEETING THE CHALLENGES, Argonne National Laboratory, Argonne, IL. Visit http://riskcenter.doe.gov.

FOR MORE EVENTS,

SEE "CALENDAR" ON OUR WEB SITE

http://riskcenter.doe.gov

Speak Your Mind (Continued from Page 10)

GENETICALLY-MODIFIED ORGANISMS

In the first article, the author states "Understanding the molecular basis for infection, invasion, and predation will allow the ecologist to use the genes that nature provides to re-establish the balance." Is it really true that the introduction of genetically engineered organisms (i.e., a genetically engineered plant or animal disease or a disease-resistant organism?) to control an "exotic", invasive species will result in the "restoration of the (ecological) balance"? Depending upon how significantly the genetic makeup of a species is altered, wouldn't genetic modification result in a "new" species or subspecies? Could you say then that the "balance" is restored if a "new" species is introduced and the exotic/invasive species removed? Wouldn't such a system be a "new" ecological community? Furthermore, in some cases, the introduction of a genetically-engineered organism to control a "pest" species could have adverse impacts on desired species.

In the second article, the author notes that "Unexpected environmental consequences do occur…monarch butterflies might be at risk if exposed to corn pollen genetically modified by the bacteria Bacillus thuringiensis (Bt)." According to a Union of Concerned Scientists' Fact Sheet "Biotechnology – Monarch Butterflies and Toxic Pollen" (http://ucsusa.org/agriculture/monarch.html) "about one-half of the larger eastern population of monarchs…passes through the Corn Belt during the Spring and Summer, just as corn is producing pollen…Bt produces a specific toxin that, when eaten, is fatal to caterpillars of moths and butterflies."

Furthermore, to quote from the *Nature* article referenced in the text, "With the amount of Bt corn planted in the United States over the next few years, it is imperative that we gather the data necessary to evaluate the risks associated with the new agro-technology and to compare these risks with those posed by pesticides and other pest-control tactics."

Finally, the genetic modification is morally not a trivial issue. We are impacting the "telos" of the animal. If we accept that animals have an intrinsic value, we are subverting their inherent value. Furthermore, if we view living things as simply "chemical factories" for the production of drugs and chemicals, what does that do to our view of nature as a whole? Is everything simply there for our use without any regard to the cost to the species, or individual animal affected?

Now, perhaps more than any other time, we need to factor in our science-based decision-making process, the ethical, theological, and political implications of actions we take which may impact the welfare of all living things.

Jerry L. Coalgate, Alexandria, VA

Editors' Note: *The above letter has been modified to fit this column. The full, unedited version can be viewed at http://riskcenter.doe.gov, click on Newsletters, April/May 2000, Vol.2, No.4.*

SO, WHAT DO YOU THINK?

Please visit the Center's web site at

http://riskcenter.doe.gov

and share your thoughts about the newsletter and our web site.

SUBMITTAL OF ARTICLES, LETTERS, COMMENTS, and QUESTIONS

THE NEXT ISSUE OF *RISK EXCELLENCE NOTES* WILL FOCUS ON CLEANUP GOAL ISSUES. Submittal of articles and information for Risk Excellence Notes is encouraged and should be sent to Mary Jo Acke Ramicone or Nancy Lane at:

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